WHAT IS CLAIMED IS:

1. A composite material comprising:

a first fiber having a cross sectional diameter of greater than about 3 microns; and

a plurality of elongated second fibers having a cross sectional diameter of less than approximately 1 micron wherein the plurality of second fibers are in contact with the first fiber.

2. The composite material of Claim 1, wherein said plurality of elongated second fibers is bonded to a portion of said first fiber.

3. The composite material of Claim 2, wherein said portion comprises the tips.

4. The composite material of Claim 1, wherein at least some of said plurality of elongated second fibers comprises multi-walled nanotubes.

5. The composite material of Claim 4, wherein said multi-walled nanotubes are hollow.

6. The composite material of Claim 5, wherein said multi-walled nanotubes and said first fiber both comprise carbon.

7. The composite material of Claim 6, wherein said first fiber is nickel coated.

8. A method of making a composite material comprising attaching whiskers having a diameter of less than about 1 micron to the tips of fibers having a diameter of greater than about 3 microns.

9. The method of Claim 8, wherein said whiskers and said fibers both comprise carbon.

10. The method of Claim 9, wherein said second fiber is nickel coated.

11. A method of making a composite material comprising:

cutting a plurality of first fibers;

sputtering a nickel film onto at least the tips of said plurality of first fibers; and

growing a plurality of second fibers on the tips.

12. The method of Claim 11, wherein growing said plurality of second fibers includes utilizing plasma-enhanced chemical vapor deposition.

13. A composite material comprising:

a plurality of fibers having first and second ends, said fibers being predominantly aligned; and

a carbon fiber material located predominantly proximate to said first end, said carbon fiber material forming a pliable contact surface being substantially parallel with said first end, said pliable contact surface having a higher degree of mechanical resilience than the plurality of fibers in response to application of an external load.

14. The composite material of Claim 13, wherein said plurality of fibers have a diameter of more than about 3 microns, and wherein said carbon fiber material comprises a plurality of nanofibrils having a diameter of less than about 1 micron.

15. The composite material of Claim 13, wherein said plurality of fibers have a diameter of more than about 3 microns, and wherein said carbon fiber material comprises an unaligned discontinuous powder of nanofibrils with diameters of about 50-300 nanometers and lengths of about 20 to 80 microns.

16. The composite material of Claim 14, wherein said plurality of fibers comprise carbon.

17. The composite material of Claim 16, wherein said plurality of fibers is nickel coated.